

REMARKS

Further to the Amendment filed December 4, 2003, entry of the foregoing, reexamination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.112, and in light of the remarks which follow are respectfully requested.

Claims 1-36 are pending in the application, claims 34-36 having been added above.

By the amendments above, claim 1 has been revised to point out that the at least one pit has a plurality of sides, and that first and second sections of the substrate are wet etched to form first and second groove sections, wherein the first and second groove sections each adjoin respective intersecting sides of the pit. Support can be found at least in Figures 2-4 of the application. This language has been added in place of the phrase "at least one pit projects into the sections," which has been deleted. Claim 3 has been amended consistent with the amendments to claim 1. Claim 15 has been amended to point out that the pit has a plurality of sides, and that the first and second wet-etched sections each adjoin respective intersecting sides of the pit. This language replaces the recitation that the pit extends into the first and second wet-etched sections. Support can be found at least in Figures 2-4 of the application. Claim 23 has been amended by reciting that the dry-etched pits extend into the substrate to a depth greater than the wet-etched sections, support for which can be found at least in Figure 6. The claim 23 recitation pointing out that the substrate is "silicon", added in the previously filed response, has been deleted. Claims 34-36 have been newly added. Support can be found at least in Figure 2 and section [0025] of the specification. Other claim amendments are for readability and/or consistency.

Applicant thanks the Examiner for her time and consideration during the telephonic interviews of December 10 and 29, 2003. During the interviews the outstanding rejections were discussed as well as the amendments and arguments set forth in the previously filed Amendment. The claim language relating to the dry-etched pit projecting into the wet-etched sections was discussed. The Examiner requested that alternative language be employed for clarification.

Claims 15-22 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection has been obviated by the previously filed amendments to claims 15 and 16. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 1-3, 6-10, 12-14, 23 and 25-31 stand rejected under 35 U.S.C. §102(b) as being clearly anticipated by *Tabuchi* (U.S. Patent No. 5,611,006). In addition, claims 11 and 15-22 stand rejected under 35 U.S.C. §103(a) as being obvious over *Tabuchi*. Applicant withdraws the arguments presented in the previous response regarding these rejections in light of the foregoing amendments, and respectfully traverse the rejection for the following reasons.

Tabuchi relates to an integrated optical device, and more particularly, to a hybrid-type integrated optical device having optical components such as laser diodes, photo-isolators, and photodiodes integrated on a single substrate (col. 1, lines 8-12). In making the rejection, the Examiner relies on the device depicted in Figure 14 of *Tabuchi*.

Tabuchi does not disclose or suggest each feature of the present invention. For example, *Tabuchi* does not disclose or suggest a method for forming a V-groove in a substrate having a varying width, wherein first and second groove sections each adjoin respective intersecting sides of the pit, as set forth in independent claim 1. As described in more detail in applicant's specification with reference to the exemplary embodiment illustrated in Figures 2-3, diamond-shaped pits 30, 32, 34, 36 may be provided which extend into the V-groove sections, as such structures can suppress the formation of wedges in the V-groove sections. The specification further states that any shape which provides a projection into the V-grooves section may be used (specification at section 25). It is desired to suppress wedge formation, for example, because a wedge may interfere with proper placement of an optical fiber in the V-groove sections. At the Examiner's request, alternative language to the pit projection has been added to independent claims 1 and 15. The amendatory language includes that the first and second sections each adjoin respective intersecting sides of the pit. This language is descriptive at least of the exemplified structures shown by Figures 2-5 and 7. Such a structure is not disclosed or suggested by *Tabuchi* (see Official Action at page 2).

Accordingly, withdrawal of the rejection with respect to claim 1 and the claims dependent therefrom is in order.

Regarding independent claim 23, *Tabuchi* does not disclose or suggest an optical coupler, having wet-etched sections of varying width and an optical fiber mounted in the wet-etched sections. The optical fiber 23 of *Tabuchi* is disposed in a conventional V-groove 24 having a single width. Since *Tabuchi*'s spherical lens 16d sits in region 25d adjacent the end of the optical fiber, the optical fiber cannot extend into region 42d, which is on the opposite side of the spherical lens from the optical fiber.

For at least these reasons, withdrawal of the rejections based on *Tabuchi* is respectfully requested.

Claims 23-27 stand rejected under 35 U.S.C. §102(b) as being clearly anticipated by *Takahashi* (U.S. Patent No. 5,339,377). Applicant withdraws the arguments presented in the previous response regarding this rejection in light of the foregoing amendments, and respectfully traverse the rejection for the following reasons.

Takahashi relates generally to an optical fiber splicer for ribbon-shaped optical fiber cords (col. 1, lines 6-7). The optical fiber splicer includes an aligning member and a cover member adapted to cooperate with the aligning member to allow sheathless optical fibers to be received in substantially V-shaped grooves (col. 1, lines 17-21).

Takahashi does not disclose or suggest each feature of applicant's invention. For example, *Takahashi* does not disclose or fairly suggest an optical coupler that includes a substrate having a tapered groove formed of a plurality of spaced apart dry-etched pits joined together with wet-etched sections of varying width, wherein the dry-etched pits extend into the substrate to a depth greater than the wet-etched sections. As *Takahashi* does not disclose formation of its grooves using applicant's dry-etched pits and wet-etched sections, there is no suggestion of a tapered groove having the presently claimed structure. Accordingly, withdrawal of this rejection is respectfully requested.

As a final matter, applicant notes the Examiner's taking of Official Notice with respect to the claimed U-grooves. Applicant respectfully requests that a prior art document be provided in support of this position.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at her earliest convenience.

Respectfully submitted,



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